Simergy v1.4 Release

ESSENTIAL READING!

This forth release of Simergy is a minor one. It resolves issues that were reported in version 1.1 (released in April 2014), version 1.2 (July 2014), and version 1.3 (September 2014).

This document contains an overview of feature limitations and known issues in this release of Simergy. More information in all of these areas is available at: http://simergy.lbl.gov.

We strongly suggest that you subscribe to the support forum at simergy-users@onebuilding.org by sending a blank email to simergy-users-subscribe@onebuilding.org. Members of the Simergy Development Team will monitor the forum and will respond to questions if an answer from another forum member is not forthcoming or the answer is incorrect or incomplete. It is anticipated that additional technical support will be available from 3rd party providers.

Use the Support Form on the website to report bugs, with reproduction steps, and to propose new features. Email simergy-feedback@lbl.gov to report problems with the Support Form and to communicate with the Simergy Development Team directly.

See the Help Resources within Simergy and on the website as well as the Survival Tips at the end of this document!

Limitations of this Release

- IDF Import
  - IDF version -- This release of Simergy supports simulation in EnergyPlus version 7.2. Older version IDF files must be converted to v7.2 format using the conversion utility that installs with EnergyPlus. Support for version 8 of EnergyPlus will come in the v1.5 release of Simergy.
  - IDF Import filtering -- While Simergy supports nearly all object types/concepts in the IDF schema internally, a number of IDF object types cannot be automatically converted to Simergy objects such that they can be edited. For example, editing of HVAC systems is done in schematic diagrams. Such schematics do not exist in IDF. In general, Simergy imports building geometry, loads, and schedule data from IDF. A summary of the objects not imported is reported to the user when IDF import is complete.
- IFC Import/Export, gbXML Import, and DWG/DXF Draw-Over --- THESE FEATURES AVAILABLE IN SIMERGY PRO ONLY ---
  - The IFC import/export, gbXML import, and DWG/DXF Draw-Over features in v1.0 were the source of highest frustration for that release. Over 90% of the support requests were about these three feature areas. There are several reasons for this, but the most common reason is that IFC and gbXML data exported from other applications is almost always flawed. More than 50% of the time, gbXML data does not even validate against the gbXML schema. Therefore, in an effort to 'set expectations realistically', these features were removed from the standard version of Simergy, as of the v1.1 release.
  - We have been working on ways to improve these model creation options more consistent and reliable, including IFC/gbXML schema validation and rules based model checking _before_ the start of import. These improvements are being tested in a Beta for a 'Professional' version, named Simergy Pro. This extended version is currently only available in a Beta Test Program. End users that are interested in participating in this Beta Test program for Simergy Pro should send email to SimergyBetaProgram@DigitalAlchemyPro.com requesting participation.
- Building Model
  - Material Constructions (Layer Sets)
    - Construction (Material Layer Set) templates are associated at the Building level only. The default constructions to be used throughout the building model are defined here. There are some places (e.g. custom walls) where override constructions can be specified by the user, but all auto-generated building elements will use the construction specified in the template associated with the building.
    - Material layers in inter-zone slabs (floors, raised floors, ceilings) will be interpreted as having the 'Outside Layer' at the bottom and Layers 2-9, in order, moving upwards.
    - Material layers for all exterior (envelope) building elements (are interpreted from 'Outside Layer' facing outdoors, and 'Layers 2-9', in order moving inwards.
    - Constructions for interior walls should be symmetrical about the centerline. If they aren't, the direction will be ambiguous and thus be interpreted as either direction.
    - Adiabatic walls - users cannot tag walls/space boundaries as adiabatic. This can only be done through the assigned construction and material properties. For walls created by the Simergy Model Creator™, Constructions are assigned according to the constructions defined in the Constructions Template. For walls/slabs created in the Building/Tools tool set, the user can select the construction to be assigned. Tagging of Walls/Slabs as adiabatic is scheduled for inclusion in the next major release of Simergy.
- HVAC Systems
  - Controllers that require a connection to a thermal zone (e.g. for the thermostat) use the first zone in the loop as a default

  - The equipment list of control schemes are automatically generated and include all supply side components. Manual selection of control scheme lists will be considered as an enhancement in the next major release of Simergy.
  - No support for cross loop control connections (between supply and demand side for air loops)
  - IMPORTANT: Demand side components and connections are updated every time the user loads a specific diagram. Thus changes to the demand side require a load of the related systems to ensure all connections are properly made.
- Simulation
  - While it is possible for the user to edit the IDF model generated by Simergy and still use Simergy to view and compare simulation results, this can only be done after the initial simulation run (with the Simergy generated IDF model). See tutorial for more detail.
- The following concepts are not supported in this version of Simergy
  - Refrigeration and Variable Refrigeration Flow (VRF) loops
  - The following IDF concepts/objects are not supported in Simergy v1.3 for the reasons cited. If the user requires these, they must be added into the IDF manually and the simulation rerun.
    - Parametric: object set -- will be considered in a future release (see below)
    - EnergyManagementSystem: object set -- will be considered in a future release
    - UserDefined object set -- will be considered in a future release
- The following requested features are not supported in this version of Simergy, but are being considered in future releases
  - Model Validation
    - Component properties - check consistency where one property is dependent on or influenced by another property.
  - HVAC System Creation
    - User drag/drop placement of equipment on the demand side of an HVAC loop -- in addition to the demand side assignment that is currently supported
    - Dual and Triple duct air loops
    - Primary/secondary water loops
    - Water and ice storage tanks
  - Simulation
    - Parametric simulation series -- i.e. scripted running of multiple simulations with certain parametric variations
  - Reporting
    - Generation of LEED baseline models
    - Generation of LEED reports
    - X-Y scatter plots
  - Import/Export
    - Pass-thru of comments in IDF files (that is: comment in imported IDF files are not passed thru)

Known Issues in this Release

- Efforts continue to improve speed and reduce memory usage in the following areas:
  - HVAC System workspaces
  - Model creation for large models
  - Import of large models (we have begun testing 64-bit versions of Simergy Pro)
- Schedules
  - Many of the schedules have been converted to the new format used by the schedule editor, which supports automatic unit conversion. However, the Legacy Schedule View does not support automatic unit conversion. Most of the schedules in Simergy are normalized and hence do not have units - the main exceptions are temperature schedules, most of which were imported from EnergyPlus and are in SI units. If you work in IP, check the values of any Legacy Schedules you use and then edit them manually as necessary.
  - Note: when you select the Libraries:Schedules from the ribbon, you will be prompted to select either “Schedule Editor” or “Legacy Schedule View”. The “Schedule Editor” is the graphical tool that allows you to create, edit, view and review the schedules and it translates them into the format required to run EnergyPlus.
- Results Visualization
  - HVAC system node variables are used in cases where EnergyPlus does not have explicit output variable names, e.g. coil inlet and outlet temperatures.
- Problematic Characters -- users should refrain from using the following characters in user defined strings:
  1. ‘ (single quote)
  2. , (comma)
  3. ; (semi-colon)
  4. ^ (carrot)
  5. ` (???)

6. ~ (tilde)
7. ! (exclamation)

Survival Tips

- Refer to the Help Resources that are available in the Application Help menu ( symbol on right side of the ribbon), and on the Simergy website. These resources include: CHM (Help) files, user guides, examples, video tutorials, and the EnergyPlus Input-Output reference.
- Join the technical support forum at simergy-users@onebuilding.org by sending a blank email to simergy-users-subscribe@onebuilding.org. Use the Support Form on the website to report bugs, with reproduction steps, and to propose new features. Email simergy-feedback@lbl.gov to report problems with the Support Form and to communicate with the Simergy Development Team directly.
- Use Autosave – set by selecting Options from the File menu and then selecting Preferences
- Choose IP or SI units by selecting Options from the File menu and then selecting User Interface Measure Units. 'Save' sets the units for your current project file, 'Save As Defaults' applies the changes for future project files. These saved settings will be applied to and NEW project the user creates.
- You can run more than one instance of Simergy at once. Building a model in one instance while using another instance to look at sample files and libraries and templates is much easier, at least when getting started. Using two monitors is particularly helpful. Use a hi-res monitor, preferably HD (1080p = 1920x1080) or 1600x900, to minimize the need to use scroll bars.
- File locations are:
  Simergy
  - Installation files – executables, help files, etc.
    - C:\Program Files (x86)\Digital Alchemy\Simergy (32-bit) -- (exclude (x86) on 32-bit Windows)
  - C:\Users\Public\Simergy\LibrariesAndTemplates\Library.siml – library files
  - C:\Users\Public\Simergy\Samples\... – example projects and IFC and gbXML example import files
  - C:\Users\Public\Simergy\SimulationResults\... – EnergyPlus generated files, including error files
  - C:\Users\Public\Simergy_ReferenceFiles\Simergy_Essential_Reading_v1.3.pdf - this file
  - C:\Users\Public\Simergy_ReferenceFiles\SBTRulesSetV1.cset – Solibri Model Checker rule set for IFC files

  Simergy Pro
  - Installation files – executables, help files, etc.
    - [32-bit version] C:\Program Files (x86)\Digital Alchemy\Simergy Pro (32-bit)
      -- Note: exclude (x86) on 32-bit Windows --

      OR
    - [64-bit version] C:\Program Files\Digital Alchemy\Simergy Pro (64-bit)
  - C:\Users\Public\SimergyPro\LibrariesAndTemplates\Library.siml – library files
  - C:\Users\Public\SimergyPro\Samples\... – example projects and IFC and gbXML example import files
  - C:\Users\Public\SimergyPro\SimulationResults\... – EnergyPlus generated files, including error files
  - C:\Users\Public\SimergyPro_ReferenceFiles\Simergy_Essential_Reading_v1.3.pdf - this file
  - C:\Users\Public\SimergyPro_ReferenceFiles\SBTRulesSetV1.cset – Solibri Model Checker rule set for IFC files

- When building a model by modifying a sample file, starting by saving the file in a separate directory.
- When running simulations, you can start another simulation, either in the current Design Alternative or a different Design Alternative, as soon as the EnergyPlus input file has been created and sent to EnergyPlus. Note the state of the cursor and wait until the rotating circle has changed back to usual arrow before selecting another simulation
- When first running a model, run the Design Days rather than a full year. Do this by choosing the appropriate Simulation Parameters template when creating a New Configuration; also select a detailed Request Set to facilitate troubleshooting.
- In Create/Edit Building – changes made to the parameters in the Create/Edit palette are not applied to the model until the user clicks Preview, and then Save. If the user clicks to switch to another workspace before Preview/Save, the changes will be abandoned.
- If a template has been used in a project, and is later changed in the Templates workspace (which edits the library version of the template), the template must be re-applied to the project by selecting it again. For example, if the user edits the Constructions template in the Templates workspace, and want to apply those changes to an existing project/building, they must re-select the templates in the 'Building Constructions' dropdown list (in the Create/Edit Buildings workspace).
- When selecting a row, e.g. a loop or a Zone Group in Create/Edit or a Design Alternative, it is best to click the small box at the extreme left of the row – which selects the row. Avoid clicking on a field that contains the name of a template unless you want to reapply the template
- Use the Tab key to enter a value (number or text string) that you have just entered – this also takes you to the next editable field.

- When selecting a Library Entry or a Template, the user should think about whether they want to get it from the Project Library, i.e. use one that has already been used in the project, or get it from the Current Library (usually Library.siml). Entries from the Project Model are listed at the top (in black text color), and entries from the Library Model are listed below (in red text color).
- If you have data or a configuration (e.g. an HVAC system) that you might, possibly, want to use again, create a Library entry or a Template rather than making local changes in your project. These changes will be saved to the Current Library, so avoid editing existing entries unless you are sure you want to change them permanently. Better to make a copy with a different name, better still set up your own library – the easiest way is to copy and save Library.siml with a new name and, possibly, a new location. Then, go to File | Options | Library/Template Preferences, add the library you have just created and Select it as #1, with Library.siml as #2, and then Save, or Save As Defaults to have the selection persist.